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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22

Date : 10.02.2022

ATTERBERG LIMITS TEST FOR WMM

Client :Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.

Agency : M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.

Name of Work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 08.02.2022 to 10.02.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	23.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date :16.02.2022

ATTERBERG LIMITS TEST FOR WMM

Client :Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.

Agency : M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.

Name of Work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 14.02.2022 to 16.02.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date :16.02.2022

ATTERBERG LIMITS TEST FOR WMM

Client :Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.

Agency : M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.

Name of Work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 14.02.2022 to 16.02.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	22.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date :16.02.2022

ATTERBERG LIMITS TEST FOR WMM

Client :Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.

Agency : M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.

Name of Work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 14.02.2022 to 16.02.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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JobNo: CACE/BBMP/KTR/W.No.14 /2021-22 Date : 09.05.2022

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.

Agency : M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.

Name of work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963

Date of Test : 09.05.2022

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.10	12.90	25.00	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.30	13.20	25.50	

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JobNo: CACE/BBMP/KTR/W.No.14 /2021-22 Date : 09.05.2022

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**

Agency : **M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.**

Name of work : Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test : 09.05.2022

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	382	378	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	83	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	299	297	
5	Aggregate Impact value = percent fines	21.73	21.56	**21.64**
	100* (W2/W1) percent			

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 09.05.2022

Aggregate Gradation Test

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	09.05.2022

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	584	5.8	5.84	94.16	90 - 100	
19.00	1258	12.6	18.42	81.58	71 - 95	
13.20	1378	13.8	32.20	67.80	56 - 80	
4.75	2399	24.0	56.19	43.81	38 - 54	
2.36	1078	10.8	66.97	33.03	28 - 42	
0.300	1313	13.1	80.10	19.90	7 - 21	
0.075	1185	11.9	91.95	8.05	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	748	7.5	7.48	92.52	90 - 100	
19	1421	14.2	21.69	78.31	71 - 95	
13.2	1195	12.0	33.64	66.36	56 - 80	
4.75	2408	24.1	57.72	42.28	38 - 54	
2.360	1101	11.0	68.73	31.27	28 - 42	
0.300	1405	14.1	82.78	17.22	7 - 21	
0.075	1107	11.1	93.85	6.15	2 - 8	

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Job No: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 09.05.2022

TEST REPORT ON PAVING BITUMEN

Client	Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of work	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	09.05.2022
Type of Mix	Dense Graded Bituminous Macadam , VG 30
Source of Location	Hot Mix Plant

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

SLNo	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	54	Min 45
2	Softening point, 0C	48	Min 47
3	Ductility at 250C, cm	>95	Min40
4	Flash Point, 0C	245	Min 220

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22

Date: 11.05.2022

Specific Gravity And Water Absorption Test

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	09.05.2022 to 11.05.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2023	2027	
2	Weight of basket suspended in water	W_2 g	755	756	757	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1267	1267	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2018	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	751	748	
6	Weight of oven dried aggregate	W_4 g	2007	2007	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.676	2.672	2.680	2.676
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.712	2.712	2.728	2.717
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.55%	0.65%	0.56%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 16.05.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	16.05.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.42	10.17	9 Kn (min)
2	Marshal flow, mm	2.86	3.85	2 – 4
3	Percent air voids in Mineral Aggregate	13.97	14.53	13 – 15
4	Voids in Compacted Mix	3.48	4.62	3 – 6
5	Percent Voids filled with Bitumen	68.19	69.75	65 - 75
6	Density, g/cc	2.22	2.24	--

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 19.05.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	19.05.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.66	10.41	9 Kn (min)
2	Marshal flow, mm	2.97	3.57	2 – 4
3	Percent air voids in Mineral Aggregate	13.71	14.49	13 – 15
4	Voids in Compacted Mix	3.22	4.54	3 – 6
5	Percent Voids filled with Bitumen	67.98	70.95	65 - 75
6	Density, g/cc	2.21	2.22	--

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 23.05.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	23.05.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.05	9.31	9 Kn (min)
2	Marshal flow, mm	3.85	2.81	2 – 4
3	Percent air voids in Mineral Aggregate	14.65	13.96	13 – 15
4	Voids in Compacted Mix	4.89	3.57	3 – 6
5	Percent Voids filled with Bitumen	71.91	69.48	65 - 75
6	Density, g/cc	2.26	2.25	--

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 16.05.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Date of Testing	16.05.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	23.00
7. Bitumen content in %	4.60	4.60
8. Average	4.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	40.1	40.1	8.4	91.6	90 - 100
19	72.5	112.6	23.6	76.4	71 - 95
13.2	65.2	177.8	37.3	62.7	56 - 80
4.75	83.2	261	54.7	45.3	38 - 54
2.360	75.2	336.2	70.5	29.5	28 - 42
0.300	96.1	432.3	90.6	9.4	7 - 21
0.075	21.9	454.2	95.2	4.8	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	41.3	41.3	8.7	91.3	90 - 100
19	73.2	114.5	24.0	76.0	71 - 95
13.2	66.1	180.6	37.9	62.1	56 - 80
4.75	84.40	265	55.6	44.4	38 - 54
2.360	78.8	343.8	72.1	27.9	28 - 42
0.300	98.8	442.6	92.8	7.2	7 - 21
0.075	23.1	465.7	97.6	2.4	2 - 8

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 19.05.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Date of Testing	19.05.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	22.50
7. Bitumen content in %	4.60	4.50
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.8	34.8	7.3	92.7	90 - 100
19	72.1	106.9	22.4	77.6	71 - 95
13.2	63.3	170.2	35.7	64.3	56 - 80
4.75	87.7	257.9	54.1	45.9	38 - 54
2.360	74.2	332.1	69.6	30.4	28 - 42
0.300	99.2	431.3	90.4	9.6	7 - 21
0.075	22.9	454.2	95.2	4.8	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	38.1	38.1	8.0	92.0	90 - 100
19	73.4	111.5	23.4	76.6	71 - 95
13.2	66.8	178.3	37.3	62.7	56 - 80
4.75	84.50	262.8	55.0	45.0	38 - 54
2.360	78.6	341.4	71.5	28.5	28 - 42
0.300	98.5	439.9	92.1	7.9	7 - 21
0.075	23.4	463.3	97.0	3.0	2 - 8

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 23.05.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Date of Testing	23.05.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	476
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	24.00
7. Bitumen content in %	4.50	4.80
8. Average	4.65	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	37.2	37.2	7.8	92.2	90 - 100
19	74.5	111.7	23.4	76.6	71 - 95
13.2	64.1	175.8	36.8	63.2	56 - 80
4.75	89.2	265	55.5	44.5	38 - 54
2.360	77.6	342.6	71.7	28.3	28 - 42
0.300	99.8	442.4	92.6	7.4	7 - 21
0.075	21.1	463.5	97.1	2.9	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.3	36.3	7.6	92.4	90 - 100
19	78.5	114.8	24.1	75.9	71 - 95
13.2	64.1	178.9	37.6	62.4	56 - 80
4.75	81.20	260.1	54.6	45.4	38 - 54
2.360	74.7	334.8	70.3	29.7	28 - 42
0.300	96.4	431.2	90.6	9.4	7 - 21
0.075	22.7	453.9	95.4	4.6	2 - 8

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22

Date: 13.06.2022

Aggregate Impact Value

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	13.06.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	82.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	300.5	
4	Aggregate Impact value = percent fines	22.16	21.54	21.85
	100* (W_2/W_1) percent			

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date : 13.06.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	**: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	**: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.**
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	13.06.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	481	9.62	9.62	90.38	90 - 100	
9.5	503	10.06	19.68	80.32	70 - 88	
4.75	672	13.44	33.12	66.88	53 - 71	
2.36	715	14.30	47.42	52.58	42 - 58	
1.18	549	10.98	58.40	41.60	34 - 48	
0.600	603	12.06	70.46	29.54	26 - 38	
0.300	517	10.34	80.80	19.20	18 - 28	
0.150	351	7.02	87.82	12.18	12 - 20	
0.075	401	8.02	95.84	4.16	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	445	8.90	8.90	91.10	90 - 100	
9.5	587	11.74	20.64	79.36	70 - 88	
4.75	685	13.70	34.34	65.66	53 - 71	
2.36	551	11.02	45.36	54.64	42 - 58	
1.18	581	11.62	56.98	43.02	34 - 48	
0.600	597	11.94	68.92	31.08	26 - 38	
0.300	689	13.78	82.70	17.30	18 - 28	
0.150	205	4.10	86.80	13.20	12 - 20	
0.075	471	9.42	96.22	3.78	4 - 10	

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 13.06.2022

TEST REPORT

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	13.06.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	57	Min 45
2	Softening point, ^{0}C	51	Min. 47
3	Ductility at 27^{0}C, cm	> 102	Min. 40
4	Flash Point, ^{0}C	279	Min. 220

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date : 13.06.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	**M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.**
Name of Work	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	13.06.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	12.3	13.1	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	12.6	12.8	
	Combined Flakiness & Elongation index	24.90	25.90	

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22

Date : 15.06.2022

Specific Gravity And Water Absorption Test

Client	: Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.
Agency	: M/s K T R Constructions(Prop.K.T.Ravi), Contractor, Mysore.
Name of the Work	: Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	13.06.2022 to 15.06.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2027	2023	2026	
2	Weight of basket suspended in water	W_2 g	753	755	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1274	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2023	2022	2025	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	749	754	755	
6	Weight of oven dried aggregate	W_4 g	2010	2011	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.684	2.667	2.665	2.672
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.731	2.707	2.712	2.716
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.65%	0.55%	0.65%	0.61%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22

Date: 21.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	21.06.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.63	10.13	9 Kn (min)
2	Marshal flow, mm	3.81	3.23	2 – 4
3	Percent air voids in Mineral Aggregate	14.75	14.19	13 – 15
4	Voids in Compacted Mix	5.17	4.89	3 – 6
5	Percent Voids filled with Bitumen	72.91	72.14	65 - 75
6	Density, g/cc	2.27	2.25	--

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 21.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	21.06.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.32	9.98	9 Kn (min)
2	Marshal flow, mm	2.89	3.61	2 – 4
3	Percent air voids in Mineral Aggregate	13.72	14.23	13 – 15
4	Voids in Compacted Mix	3.65	4.38	3 – 6
5	Percent Voids filled with Bitumen	68.14	70.11	65 - 75
6	Density, g/cc	2.24	2.26	--

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Job No.: CACE/BBMP/KTR/W.No.14 /2021-22 Date: 24.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer ,Dasarahalli Sub division, BBMP, Bangalore.**
Agency	:	**M/s K T R Constructions(Prop.K.T.Ravi),** Contractor, Mysore.
Name of the Work	:	Improvements of roads and drains in Vijaya Bharathi School Surroundings and Other area in Bagalagunte ward no.14, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	24.06.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.65	9.34	9 Kn (min)
2	Marshal flow, mm	3..85	2.78	2 – 4
3	Percent air voids in Mineral Aggregate	14.29	13.45	13 – 15
4	Voids in Compacted Mix	4.37	3.52	3 – 6
5	Percent Voids filled with Bitumen	72.35	70.61	65 - 75
6	Density, g/cc	2.24	2.23	--

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